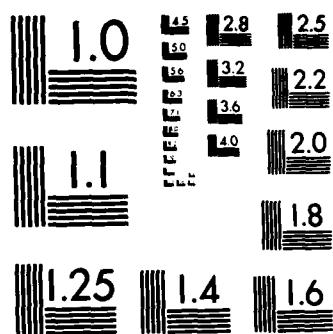


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ENVIRONMENTAL RESEARCH DIV P M DEHMER ET AL 13 JUN 86  
UNCLASSIFIED AFOSR-TR-86-2022 AFOSR-86-0186 F/G 7/5 NL





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The Third Gordon Research Conference on Multiphoton Processes was held at Brewster Academy in Wolfeboro, NH on 9-13 June 1986. There were 116 scientists in attendance including conferees from 7 foreign countries. There were 21 invited speakers and 66 contributed poster papers.

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## FINAL REPORT OF

## THE GORDON RESEARCH CONFERENCE ON MULTIPHOTON PROCESSES

COLBY-SAWYER COLLEGE, NEW LONDON, NEW HAMPSHIRE

9-13 JUNE 1986

Grant Number AFOSR-86-0186

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**86 12 04 023**

The Third Gordon Research Conference on Multiphoton Processes was held at Colby-Sawyer College, New London, New Hampshire during the week 9-13 June 1986. The program of the Conference consisted of 21 invited talks, 66 contributed poster papers, and 7 brief oral "hot topic" presentations, which were chosen from among the contributed poster papers. In the tradition of Gordon Research Conferences, the scientific sessions were scheduled for mornings and evenings, leaving the afternoons free for discussions and/or recreational activities. The oral sessions were shortened on Monday and Wednesday evenings to allow for the late evening poster sessions. All of the oral sessions were well-attended (the sessions averaged 90-95 attendees) and the two poster sessions were very successful.

The program of the Conference covered all aspects of Multiphoton Processes in atoms and molecules. There were sessions devoted to multiphoton ionization of atoms, multiphoton ionization in intense laser fields, multiphoton ionization and dissociation processes in small molecules, multiphoton dissociation processes in larger molecules (including picosecond processes), and general interest sessions. The complete Conference program is appended.

The Conference was heavily advertised via announcements in Science and in the newsletters of the Division of Chemical Physics and the Division of Atomic, Molecular, and Optical Physics of the American Physical Society, by mailings to over 70 department heads of major chemistry departments, and by mailings to over 300 workers in the field of multiphoton processes. The Conference was attended by 105 scientists from the U.S., Canada, Europe, and Japan. This represents a significant increase in the attendance from previous years (54 in 1982 and 85 in 1984) and is due to the wide advertisement of the Conference and to the supplemental funding that the Conference received from the National Science Foundation and from the Air Force Office of Scientific Research. A complete list of attendees is appended.

The next Conference in this series will be held in 1988. The Chairman will be Professor Philip M. Johnson of the Department of Chemistry, the State University of New York at Stony Brook and the Vice-Chairperson will be Professor Peter Lambropoulos of the Department of Physics, University of Southern California.

The Conference budget of \$21,500 (\$10,500 from the Gordon Research Conferences, \$6,000 from the Air Force Office of Scientific Research, and \$5,000 from the National Science Foundation) was distributed in the following manner. The Conference registration fee, which included room and board for the week, was paid for all 28 Invited Speakers and Discussion Leaders. Partial travel support was granted to the Chairperson (who was also a Discussion Leader) and to the 9 Invited Speakers and Discussion Leaders from Europe and Japan; these disbursements amounted to \$11,625 or 54% of the total budget. The Conference registration fee was also paid for 21 graduate students and postdoctoral appointees; these disbursements amounted to \$5,775 or 27% of the total budget. Finally, partial travel and lodging support was given to 10 other attendees, 8 of whom were from Europe; these disbursements amounted to \$4,100 or 19% of the total budget. In summary, 59 attendees received partial support to attend the Conference, with a significant fraction of the budget used to support graduate students, postdoctoral appointees, and young scientists from the U.S. and abroad.

**PROGRAM OF THE  
GORDON RESEARCH CONFERENCE  
ON MULTIPHOTON PROCESSES**

**COLBY-SAWYER COLLEGE  
NEW LONDON, NEW HAMPSHIRE**

**9-13 JUNE 1986**



**PATRICIA M. DEHMER, CHAIRMAN  
PHILIP M. JOHNSON, VICE-CHAIRMAN**

Monday Morning, 9 June 1986

- Patricia M. Behmer**, Argonne National Laboratory, Discussion Leader  
8:50 Introduction by Conference Officials  
9:30 **Steven D. Colson**, Yale University  
"Multiphoton Ionization-Photoelectron Spectroscopic Studies of  
Molecular Excited States -- Structure and Dynamics"  
10:20 Break  
10:35 **Philip M. Johnson**, State University of New York at Stony Brook  
"Multiphoton Ionization Spectroscopy of Radicals and Metastables"  
11:25 **Robert N. Cooptron**, Oak Ridge National Laboratory  
"Multiphoton Ionization, Stimulated Electronic Raman Scattering, and  
Harmonic Generation in Dense Alkali Vapors"

Tuesday Evening, 10 June 1986

- Stephen J. Smith**, Joint Institute for Laboratory Astrophysics, Discussion  
Leader  
8:50 Introduction by Conference Officials  
9:30 **Gerard Mainfray**, Centre d'Etudes Nucleaires de Saclay, France  
"Electron Energy Spectra in Multiphoton Ionization of Atoms"  
10:20 **Peter Lambropoulos**, University of Southern California  
"Collectivization, versus Laissez-Faire Photon Absorption: The Atom's  
Dilemma Under a Pulsed Strong Laser"  
21:10 Hot Topic: **P. H. Bucksbaum, R. R. Freeman, AT&T Bell Laboratories,  
T. J. McIlrath, University of Maryland, and M. Bashkansky, Columbia  
University**  
"Multiphoton Ionization and Pondermotive Forces"

Monday Afternoon, 9 June 1986

- 16:30 Poster Session I -- Sneak Preview
- Monday Evening, 9 June 1986
- Steven D. Colson**, Yale University, Discussion Leader  
19:30 **John B. M. Goldsmith**, Sandia National Laboratories  
"Multiphoton Excitation Techniques for Combustion Diagnostics"  
20:20 Hot Topic: **Roberta P. Saxon, Douglas J. Bamford, and William K.  
Bischel**, SRI International  
"Absolute Two-Photon Absorption Cross Sections in Atomic Oxygen:  
Agreement Between Theory and Experiment"  
20:40 Poster Session I -- Program is appended

Tuesday Morning, 10 June 1986

- Edward R. Grant**, Purdue University, Discussion Leader  
9:00 **Ahmed Zewail**, California Institute of Technology  
"Picosecond and Femtosecond Multiphoton Mass Spectrometry"  
9:50 **Curt Wittig**, University of Southern California  
"Controlling Initial Geometries in Reactive and Inelastic Scattering"  
10:40 Break  
10:55 **Richard Berson**, Columbia University  
"Competition Between Photodissociation and Photoionization in  $\text{CH}_3\text{I}$ "  
11:45 Hot Topic: **J. Hossenlopp, D. Rooney, B. Samoriski, and J. Chaiken**,  
Syracuse University  
"MPD/MPI of Organometallic Molecules - The Role of Nonradiative  
Processes in Determining Free Metal State Distributions"  
12:45 **W. J. Appling, M. G. White, W. J. Kessler, R. Fernandez, and  
E. D. Poliakoff**, Brookhaven National Laboratory  
"Photoionization of Aligned Molecular Excited States"

Wednesday Morning, 11 June 1986

- Stephen A. Chupka**, Yale University, Discussion Leader  
9:00 **Stephen T. Pratt**, Argonne National Laboratory  
"Multiphoton Ionization of Diatomic Molecules"  
9:50 **Michael N. R. Ashfold**, Bristol University, Bristol, England  
"Rydberg States and Spectroscopy of  $\text{NH}_3$ "  
10:40 Break  
10:55 **Jeffrey W. Hudgens**, National Bureau of Standards  
"Resonantly Enhanced Multiphoton Ionization Spectroscopy of Reactive  
Intermediates"  
11:45 Hot Topic: **S. N. Dixit, D. L. Lynch, H. Rudolph, and V. McCoy**,  
California Institute of Technology  
"Theoretical Studies of REMPI Processes in Diatomic Molecules"
- Wednesday Afternoon, 11 June 1986
- 16:30 Poster Session II -- Sneak Preview
- Wednesday Evening, 11 June 1986
- Katsuaki Kimura**, Institute for Molecular Science, Okazaki, Japan, Discussion  
Leader  
19:30 **H. B. van Linden van den Heuvell**, FOM - Institute for Atomic and  
Molecular Physics, Amsterdam, The Netherlands  
"Resonantly Enhanced Multiphoton Ionization of Highly Excited and  
Continuum States in Atoms and Molecules"  
20:20 Hot Topic: **J. Appling, M. G. White, W. J. Kessler, R. Fernandez, and  
E. D. Poliakoff**, Brookhaven National Laboratory  
"Photoionization of Aligned Molecular Excited States"  
20:40 Poster Session II -- Program is appended

Thursday Morning, 12 June 1986

- Edward Schleg, Institut für Physikalische und Theoretische Chemie der  
Technischen Universität München, Munich, West Germany, Discussion Leader  
9:00 Stephen C. Wallace, University of Toronto, Toronto, Canada  
"Multiphoton Ionization Spectroscopy of Jet-Cooled Molecules and van  
der Waals Clusters"  
9:50 A. Walford Castleman, Jr., Pennsylvania State University  
"Shedding Some Light on Clusters: An Exciting Process"  
10:40 Break  
10:55 Paul Houston, Cornell University  
"Multiphoton Ionization Detection of the Fragments of Photo-  
dissociation"  
11:45 Hot Topic: John C. Miller, Oak Ridge National Laboratory  
"Multiphoton Spectroscopy and Photophysics of van der Waals Clusters"

Thursday Evening, 12 June 1986

- Thomas Gallagher, University of Virginia, Discussion Leader  
19:30 Karl Welge, Universität Bielefeld, Bielefeld, West Germany  
"Multiphoton Ionization of Atoms"  
20:20 R. Stephen Berry, University of Chicago  
"Exploring Electron Correlations in Excited States by Resonant  
Multiphoton Ionization - Energy and Angular Distributions"  
Hot Topic: M. Sander, L. A. Chever, and Klaus Müller-Dethlefs,  
Institut für Physikalische und Theoretische Chemie der Technischen  
Universität München, Munich, West Germany,  
"Rotationally Resolved Zero Kinetic Energy Photoelectron Spectroscopy  
of Nitric Oxide"

Friday Morning, 13 June 1986

- Philip M. Johnson, State University of New York at Stony Brook, Discussion  
Leader  
9:00 Yoshiaki Achiba, Institute for Molecular Science, Okazaki, Japan  
"Multiphoton Ionization-Photoelectron Spectroscopic Studies on  
Dynamics of Excited Molecules"  
9:50 Hans J. Neusser, Institute für Physikalische und Theoretische Chemie  
der Technischen Universität München, Munich, West Germany  
"Doppler-Free Two-Photon Excitation and Intramolecular Dynamics"  
10:40 Break  
10:55 James Reilly, Indiana University  
"Intensity Dependence of Laser Mass and Photoelectron Spectra"

**POSTER SESSION I - MONDAY EVENING**

- M1 Inverse Half-Bremsstrahlung in Multiphoton Ionization of Atoms in Intense Light Beams  
*Joseph Kupersztych* (Service de Physique des Atomes et des Surfaces, CEN, Saclay)
- M2 Multiphoton Simple and Double Ionization of Strontium: An Electron Spectroscopy Study  
*Guillaume Petite and Pierre Agostini* (Service de Physique des Atomes et des Surfaces, CEN, Saclay)
- M3 Absorption and Emission of Photons by Electronic Continuum States of Atomic Hydrogen and Xenon  
*H. B. van Linden van den Heuvell, H. G. Muller, and M. J. van der Wijs* (FOM Institute for Atomic and Molecular Physics)
- M4 Photoelectron Spectroscopy of Above-Threshold Ionization of Xenon with Linearly and Circularly Polarized Light  
*R. Hippel, H. Schwier, H.-J. Humpert, and H. O. Lutz* (University of Bielefeld)
- M5 Multiphoton Ionization and Ponderomotive Forces  
*P. H. Bucksbaum, R. R. Freeman* (AT&T Bell Laboratories), *T. J. McIlrath* (University of Maryland), and *M. Bashkauskas* (Columbia University)
- M6 Multiphoton Ionization of Xe and Kr: An Investigation of the Autoionizing Region Between the  $2P_{3/2}$  and  $2P_{1/2}$  Thresholds  
*J. A. D. Stockdale* (Oak Ridge National Laboratory), *T. Efthimiopoulos, and C. Potakis* (Research Center of Crete)
- M7 Four-Photon Rydberg Series Converging to the  $2P_{3/2}$  and  $2P_{1/2}$  Limits in Xenon and Krypton  
*C. Potakis, T. Efthimiopoulos* (Research Center of Crete), *P. R. Blazewicz, J. A. D. Stockdale, and John C. Miller* (Oak Ridge National Laboratory)
- M8 Two-Color Studies in Rare Gases: Striking Effects in Multiphoton Ionization and Third-Harmonic Generation  
*P. R. Blazewicz, M. G. Payne, W. R. Garrett, and John C. Miller* (Oak Ridge National Laboratory)
- M9 Third-Harmonic Generation and Resonant Multiphoton Ionization  
*Michel Poirier* (Service de Physique des Atomes et des Surfaces, CEN, Saclay)
- M11 Multiple Charged Ions by Multiphoton Absorption Through Autoionizing States. A Model Calculation in Carbon  
*X. Tang and P. Lambropoulos* (University of Southern California)
- M12 Absolute Two-Photon Absorption Cross sections in Atomic Oxygen: Agreement Between Theory and Experiment  
*Roberta P. Saxon, Douglas J. Bamford, and William K. Bischel* (SRI International)
- M13 Photoelectron Angular Distributions Across Autoionizing Resonances in Barium  
*James S. Keller, John E. Hunter III, and R. Stephen Berry* (University of Chicago)
- M14 Two Laser Field Ionization Spectroscopy of High Lying Rydberg Series of Second Row Transition Metal Atoms  
*D. M. Rauner, S. A. Mitchell, and P. A. Hackett* (National Research Council Canada)
- M15 Quantum Interference in Two Photon Absorption: Polarization and Magnetic Field Effects in the  $(7s)S + (5s)S$  Transition of Atomic Sr  
*R. B. Stewart and G. J. Diebold* (Brown University)
- M16 Aspects of the Jacobi-Matrix Method: Double Photoionization and Photoionization in a Magnetic Field  
*P. C. Ojha* (University of Chicago)
- M17 The Berson Model in Multiphoton Ionization  
*Miodrag Janjusevic and Marvin H. Mittleman* (The City College of the City University of New York)
- M18 Determination of Population and Alignment Using Two-Photon Nonresonant Excitation  
*Andrew C. Kummel, Greg O. Sitz, and Richard N. Zare* (Stanford University)
- M19 Multiphoton Spectroscopy and Photophysics of van der Waals Clusters  
*John C. Miller*, (Oak Ridge National Laboratory)
- M20 Multiphoton Studies of High Excited States of Acetylene  
*Thomas M. Orlando, Scott L. Anderson* (State University of New York at Stony Brook), *Jeffrey R. Applin, and Michael C. White* (Brookhaven National Laboratory)
- M21 Direct Characterization of the Internal Energy Distribution of the  $\text{CH}_2$  Photofragment Produced by Coherent VUV Photoysis of  $\text{CH}_4$   
*Paul J. Miller and William A. Chupka* (Yale University)
- M22 Multiphoton Spectroscopy of Small Hydrocarbon Radicals in a Supersonic Jet with Mass and Photoelectron Analysis  
*Peter Chen, Steven D. Colson, William A. Chupka, Joan B. Paliak, and Jerome A. Berson* (Yale University)

- M23 REMPI Photoelectron Spectroscopy of H<sub>2</sub>S in the Wavelength Region 425-475 nm**  
S. Keith Cole, Jhobe Steadaan, and Tomas Baer (University of North Carolina)
- M24 State-Selective Two-Photon Dissociation of NO<sub>2</sub>: Dynamics and Polarization Spectroscopy**  
Larry Bigio and Edward R. Grant (Cornell University)
- M25 Multiphoton Ionization Spectroscopy of HCO and DCO and Dynamics of Acetaldehyde Photolysis**  
Douglas A. Webb, Paul J. H. Tjossem, Terrill A. Cool, and Edward R. Grant (Cornell University)
- M26 Photodissociation of Methyl Iodide**  
Rachel Ogorzalek, Han-Peter Haerri, Wan-Yee Cheung, and Paul L. Houston (Cornell University)
- M27 Photofragment Spectroscopy with Coherent Vacuum Ultraviolet**  
Irene M. Waller, H. Floyd Davis, and John W. Hepburn (University of Waterloo)
- M28 SARISA III: A High-Transmission Multiple-Focusing TOF Spectrometer Utilizing a Resonance Ionization Source**  
C. E. Young, M. J. Pellin, W. P. Calaway, B. L. Schweitzer, B. Jørgensen, J. W. Burnett, and D. N. Gruen (Argonne National Laboratory)
- M29 Multiphoton Processes at Crystal Surfaces**  
J. Reif, H. B. Nielsen, O. Seemler, P. Tepper, E. Pridill, E. Westin, A. Rosén, and B. Matthias (Free University of Berlin)
- M30 Infrared Multiphoton Photooxidation of NH<sub>2</sub>D on Solid Surfaces**  
Chihi-Tsu Lin (Northern Illinois University)
- M31 Saturation of an Atomic Transition by a Phase Diffusing Laser Field**  
D. S. Elliott (Purdue University), M. W. Hamilton, K. Arnett, and S. J. Smith (JILA, University of Colorado, and NBS)
- M32 Above-Threshold Ionization Without Space-Charge**  
François Yergeau, Guillaume Petite, and Pierre Agostini (Service de Physique des Atoms et des Surfaces, CEN, Saclay)
- M33 Multichannel Multiphoton Processes in Strontium Vapor**  
J. Reif, K. Böhmer, and E. Hatchias (Free University of Berlin)
- M34 Measurement of <sup>9</sup>Be - <sup>10</sup>Be Isotope Shifts by Doppler-Free Resonance Ionization Mass Spectrometry**  
Jesse Wen, B. Carol Johnson, J. C. Travis, T. B. Lucatutto, and C. W. Clark (National Bureau of Standards)
- M35 Quantum Defect Theory Calculations of Multiphoton Excitation and Ionization Cross Sections in O Atoms**  
S. N. Dixit, D. Levin, and V. McKoy (California Institute of Technology)

**POSTER SESSION II - WEDNESDAY EVENING**

- W1 Quantum Beats in Atomic Fluorescence Excited by Molecular Photodissociation**  
Gerald J. Diebold (Brown University)
- W2 Resonant Multiphoton Ionization of H<sub>2</sub> via the E, F 1<sub>g</sub><sup>+</sup> State. Absorption of Photons in the Ionization Continuum**  
C. Cornaggia, D. Normand, J. Morellec, G. Mainfray, and C. Manus (Service de Physique des Atomes et des Surfaces, CEN, Saclay)
- W3 Inclusion of Strong Fields Effects in Quantum Defect Treatments of Molecular Processes**  
Annick Giusti-Suzor, Christian Jungen, and Peter Zoller (Laboratoire de Photophysique Moléculaire, Université de Paris-Sud)
- W4 High Resolution Multiphoton Laser Spectroscopy of Excited States of H<sub>2</sub>**  
E. F. McCorquack and E. B. Byler (Yale University)
- W5 High Resolution Studies of States of Molecular Hydrogen Near the First Ionization Limit**  
Wallace L. Glad and Jan P. Hessler (Argonne National Laboratory)
- W6 Photoelectron Energy Analysis Following Resonantly Enhanced Multiphoton Ionization of H<sub>2</sub> via the C 1<sub>u</sub> State**  
M. A. O'Halloran, S. T. Pratt, J. L. Dehmer, and P. M. Dehmer (Argonne National Laboratory)
- W7 Theoretical Studies of REMPI Processes in Diatomic Molecules**  
S. N. Dixit, D. L. Lynch, H. Rudolph, and V. McKoy (California Institute of Technology)
- W8 (2 + 1) Resonant Enhanced Multiphoton Ionization of H<sub>2</sub> via the E, F 1<sub>g</sub><sup>+</sup> State**  
H. Rudolph, D. L. Lynch, S. N. Dixit, and V. McKoy (California Institute of Technology)
- W9 Autoionization of Nonpenetrating Rydberg States in Diatomic Molecules**  
E. B. Byler (Yale University)
- W10 s and d Rydberg Series of NO Probed by Double Resonance Multiphoton Ionization: Multichannel Quantum Defect Analysis**  
Susanne Fredin, Dolores Gauyacq, Marcel Horani, Christian Jungen, and Françoise Masnou (Laboratoire de Photophysique Moléculaire, Université de Paris-Sud)
- W11 Rotationally Resolved Double Resonance Spectra of NO Rydberg States Near the First Ionization Limit**  
D. T. Biernacki, S. D. Colson, and E. B. Byler (Yale University)
- W12 Asymmetric Lineshapes Associated with Predisociating Levels of NO(E 2<sub>1</sub><sup>+</sup>)**  
M. N. R. Ashfold, R. N. Dixon, J. D. Prince, B. Dutcher, and C. N. Western (University of Bristol)

- W13 Photolonization of Aligned Molecular Excited States  
J. Appling, M. G. White, W. J. Kessier, R. Fernandez, and  
E. D. Poliakoff (Brookhaven National Laboratory)
- W14 Rotationally Resolved Zero Kinetic Energy Photoelectron Spectroscopy of  
Nitric Oxide  
M. Sander, L. A. Chester, and K. Müller-Dethlefs (Technische  
Universität München)
- W15 2 and 3 Photon REMPI Spectroscopic Investigations of Acetone and *cis*-  
Hexatriene  
R. McDiarmid and A. Sabljic (National Institutes of Health)
- W16 Semiclassical Quantization of a Classical Analog to the Jahn-Teller  $E \times e$   
System  
Josef W. Zwanziger, Edward R. Grant, and Gregory S. Ezra (Cornell  
University)
- W17 Polarization Studies of 2 + 1 REMPI Transitions in Cyclo-Alkenes and  
Methyl Cyclopentanone  
Tim Cornish and Tomas Baer (University of North Carolina)
- W18 Photodissociation of Energy Selected  $C_4H_6^+$  Ions: The Isomerization  
Barrier Between Butyne and 1,3 Butadiene Ion Isomers  
Thomas L. Bunn and Tomas Baer, (University of North Carolina)
- W19 Determination of Unimolecular Ionic Formation Rates by Pulsed Laser  
Line-Reflection Time-of-Flight Mass Spectrometry  
Tsong-Lin Tai and M. A. El-Sayed (University of California at Los  
Angeles)
- W20 A New Technique for the Determination of the Relative Kinetic Energy  
Release in Laser Multiphoton Ionization Fragmentation  
Tsong-Lin Tai and M. A. El-Sayed (University of California at Los  
Angeles)
- W21 Ion Dip Spectroscopy and Multiresonant Processes in Aromatic Molecules by  
Molecular Beam Mass Spectroscopy  
Jack A. Sverage and John E. Wessel (The Aerospace Corporation)
- W22 Reaction Dynamics from Higher Excited Electronic States by Molecular Beam  
Multiphoton Ionization  
Jack A. Sverage, James E. Pollard, and Ronald B. Cohen (The Aerospace  
Corporation)
- W23 Nonlinear Photochemistry of Organic Molecules  
Joseph L. BelBruno (Dartmouth College)
- W24 The Laser Photoelectron Spectrum of Gas Phase p-Difluorobenzene  
Ellen Sekreta, K. S. Viswanathan, and James P. Reilly (Indiana  
University)
- W25 Semiclassical Time Dependent Theory of Two-Photon Spectroscopy. The  
Effect of Dephasing in the Virtual Level on the Two-Photon Excitation  
Spectrum of Iso-Tachysterol  
Robert R. Birge (Carnegie-Mellon University) and Brian N. Pierce  
(Hughes Aircraft Company)
- W26 Valence-Rydberg Double Resonance Spectroscopy in Sym-Triazine  
Kenneth Haber and E. R. Grant (Cornell University)
- W27 MPD/MPD of Organometallic Molecules - The Role of Nonradiative Processes  
in Determining Free Metal State Distributions  
J. Hossenlopp, D. Rooney, B. Samoriski, and J. Chaiken (Syracuse  
University)
- W28 Collisional Effects in the MPI of Organometallic Molecules  
J. Hossenlopp and J. Chaiken (Syracuse University)
- W29 Multiphoton Ionization and Fragmentation of  $C_7H_8O$  and  $C_8H_{10}O$  Structure  
Isomers  
Ta-Chau Chang and Murray V. Johnston (CIRE, University of Colorado)
- W30 Unimolecular Decay Rates and Kinetic Isotope Effects of Energy Selected  
Benzene Cations in a Reflectron Mass Spectrometer  
H. Kühlwein, A. Kiermeier, H. J. Neusser, and E. W. Schleg  
(Technische Universität München)
- W31 CARS Detection of Infrared Multiphoton Excitation  
Mary Jane Shultz, Robert E. Tricca, L. M. Yau, S. L. Bevets, Wei  
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ON

MULTIPHOTON PROCESSES

June 9-13, 1986

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